

## ABSTRACT

A system for reducing noise in a wideband signal, such as speech, using a first filterbank and running cross-correlator to detect narrowband frequency components in the signal and an analysis-synthesis filterbank to attenuate the wideband signal in which narrowband frequency components are not detected. The narrowband frequency components are detected by performing a running cross-correlation of the outputs of two bandpass filters that have center frequencies that straddle the narrowband frequency and differ by 180 degrees relative to each other at the frequency to be detected. Relatively low value cross-correlations indicate that a signal is present in a given frequency band and high value cross-correlations indicate only noise is present. The wideband signal is processed by an analysis-synthesis filterbank to attenuate bands where narrowband frequency components have not been detected and to pass or amplify bands where narrowband frequency components have been detected.